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09/506,741	02/18/2000	Victor S Lobanov	1503.0730000	7797
21971	7590	12/09/2004	EXAMINER	
WILSON SONSINI GOODRICH & ROSATI			MARSCHEL, ARDIN H	
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			1631	

DATE MAILED: 12/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/506,741

**Applicant(s)**

LOBANOV ET AL.

**Examiner**

Ardin Marschel

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 7-27 and 31-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-27 and 31-48 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

### **DETAILED ACTION**

Due to the newly applied rejection based on prior art as summarized below, the finality of the office action, mailed 6/10/04, is hereby withdrawn.

Applicants' arguments, filed 9/10/04, have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

### **NON-STATUTORY SUBJECT MATTER**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-3, 7-27, and 31-48 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

This rejection is reiterated from the previous office action, mailed 6/10/04, and explained further with more details below.

It is firstly noted that the instant claims are directed to virtual library analysis which parallels the non-statutory practice of noise modeling as discussed in the MPEP in section 2106 (IV), (B), (2), (b), (ii), 4<sup>th</sup> paragraph, wherein, in contrast, a process for digitally noise filtering is statutory. The closest instant claim practice to a type of noise filtering statutory subject matter is the various steps drawn to selecting sets of compounds in the instant claims. These steps, however, are only designations of compound sets without any concrete or tangible practice. For example, such selecting

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is not directed to placing the compounds in a separate location from the library from which they were selected. The outputting of instant claim 2, for example, is not directed to any concrete or tangible practice because such outputting is commonly merely the storing of data in a computer file. It is noted that the first paragraph of the above cited section of the MPEP 2106 sets forth the non-determinative nature of internal computer signal transformation of which data storage is. If there is written basis as instantly originally filed for display or printout of data, this would support a statutory claim practice. This is only one option, however, and not required per se to overcome this rejection. Other options may be utilized as claim limitations to result in statutory subject matter such as actual synthesis of compounds selected in the instant method or analytical testing of physical compounds again depending on written basis as filed for such limitations. Certain instant claims also include means as in instant claim 23 as well as a computer program product as in instant claim 24, for example. Again, referring to the MPEP now at section 2106, (II), (A), second paragraph, statutory subject matter is described as requiring some functionality. Merely claiming non-functional descriptive material stored on a computer medium, reasonably a computer program product as instantly claimed, does not make the invention so claimed statutory or eligible for patenting. This should more clearly define the basis for this rejection.

Applicants also argue that more particularity regarding instant claims should be explained regarding this rejection. It is noted that the instant claims are fairly summarized as library modeling methodologies with various steps of selection, deconvolution, and library generation with output limitations in certain claims. Since this

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fully summarizes the nature of the instant limitations of the entirety of the presently pending claims, no further characterization or specific claim pointing is reasonably needed as to fully explaining this issue of non-statutory subject matter over what has been explained above and regarding further responses to applicants' arguments below.

Applicants further argue that the legal decision of State Street... and AT&T... indicate that mathematical algorithms are not patentable unless reduced to some practical application, i.e., a useful, concrete and tangible result. This is acknowledged. Applicants further argue that State Street... transforms data, represents discrete dollar amounts, and calculates a final share price and thus produces a useful, concrete and tangible result and then sets forth a claim in State Street. In response the State Street claim in part (f) and (g) clearly process data corresponding to gain or loss in a portfolio as well as processing data for income, expenses, and capital gain or loss for a portfolio and funds. Such gain or loss, income, expenses etc. are reasonably useful, concrete and tangible as regulating the flow of money which is concrete and tangible, similar to the above noted noise filtering concrete and tangible practice. No flow of compounds is regulated in the instant claims. No synthesis of any compound(s) is regulated or required in the instant claims. As noted above, the selection of compounds for a library does not cause them to relocate or flow. Thus, the fact pattern of the instantly claimed practice remains aliened with the above noise modeling non-statutory subject matter rather than noise filtering. This differing fact pattern is illustrated in applicants' arguments wherein instant claims 1 and 23 are set forth, but, as noted above, without

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any concrete or tangible flow corresponding to a movement of money as in State Street.

This argument is therefore non-persuasive.

Applicants then argues that what is determinative is whether the claims employ a mathematical algorithm which merely manipulates an abstract idea or is limited to a practical application thereof. As acknowledged above such a practical application is determined to be concrete and tangible. No concrete or tangible practice is seen in the instant claims as also noted above. Rather data about compounds is manipulated only in computer type subject matter. Alternatively, it is noted that the compounds selected and/or outputted in the instant claims lacks any indication therein or corresponding to disease treatment practice, or industrial chemical processing, for example. Therefore, on this basis also, the instant claims lack any practical, concrete, and tangible result limitation, but rather only abstract fitness evaluation. Such an abstract fitness function selection practice is reasonably an abstract data manipulation practice which is non-statutory subject matter.

Applicants then argue that instant claim 24 is directed to a computer program product. This has been described above as being a computer readable medium limitation which does not make a claim statutory if the material stored or present therein is itself non-statutory.

Applicant further argue that extracting an enumerated library as in claims 25, 47, and 48 is a practical application. As explained above the data manipulation of selecting, or, in this case, extracting a library is only that, data manipulation. Such extraction is not cited in the claims as being a relocating of any compound(s) or library and thus is

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reasonably an abstract data manipulation step and thus non-statutory as also explained above.

### **PRIOR ART**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 7-27, and 31-48 are rejected under 35 U.S.C. 102(e)(2) as being clearly anticipated by Cramer et al. (P/N 6,240,374).

Cramer et al. summarizes the disclosure in the title and abstract to be directed to virtual library creation and searching for molecules with characteristics similar to a selected molecule. In the last sentence of the abstract the searching of billions of possible product compounds is described. Of particular interest is the methodology set forth in columns 61-68 wherein a detailed description of an embodiment of the invention of Cramer et al. is set forth. In column 61, lines 4-9, a non-enumerated virtual library is generated from structural variations of any one synthetic reaction as in instant claim 1, part (a) which is then listed in files but not specifically enumerated at this stage in columns 61-64. From this library a random selection is generated as set forth in column 64, lines 40-42 to complete a step as in part (a) of instant claim 1. This selection is enumerated as a 0.001 fraction in column 64, lines 40-42, as also required in instant

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claim 1, part (b). In column 64, line 42, through column 65, line 3, a fitness function in the form of bits evaluated in the Tanimoto fingerprint is discussed wherein in column 65, lines 4-58, a subset of compounds is selected with certain Tanimoto similarities of 0.80 or higher (such as also in instant claims 7, 10-22, and 31-46), or, alternatively other such criteria values, as also required in instant claim 1, part (c). The structural core, and other structural building blocks are then defined as the core, fpcard, and fp in column 65, line 59, through column 66, line 65, as also required in instant claim 1, part (d), regarding deconvoluting the selected M compounds into separate files. The thus selected focused library is exemplified in column 67, line 57, through column 68, line 9, as a screening library which may be synthesized, which is the step (e) of instant claim 1. Similarity searches to produce such a screening or focused library is then discussed in column 68, line 10, through column 69, line 65, wherein in column 69, lines 42-65, the number of focused or screening library fingerprint structural variations that are searched are enumerated as in instant claim 1, step (f), therefore completing the anticipation of instant claims 1, 23-25, 47, and 48 recognizing the computer-based disclosure also of Cramer et al. An output of the results is inherently required in order to make such results useful. Such an output is shown in Figure 24 in the penultimate bottom box described as "WRITE OUT RESULTS FILE" as also required in instant claims 2 and 26 as an output specie type therein. The selection of compounds that can be synthesized as defined in the invention of Cramer et al. as well as in instant claims 3 and 27 is set forth as depicted in Figures 11(a) - 11(b), steps 8 - 8C. therein. This outputting of



results defined via similarity evaluation as noted above corresponding to instant claim 7 also anticipates instant claims 8 and 9.

No claim is allowed.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (703) 872-9306.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ardin Marschel, Ph.D., whose telephone number is (571) 272-0718. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, Ph.D., can be reached on (571) 272-0722.

Any inquiry of a general nature or relating to the status of this application should be directed to Legal Instrument Examiner, Tina Plunkett, whose telephone number is (571) 272-0549.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 7, 2004

*Ardin H. Marschel* 12/7/04  
ARDIN H. MARSCHEL  
PRIMARY EXAMINER